

We claim:

1. A system, comprising:
a processor;
5 a host controller coupled to the processor;
a device coupled to the host controller; and
wherein the device is electrically disconnected from the host controller if the device is not in an active state.
- 10 2. The system of claim 1, wherein the device is a card reader and the active state comprises a memory card in the card reader.
3. The system of claim 1, wherein the device is a hub and the active state comprises a second device attached to the hub.
- 15 4. The system of claim 1, wherein the device is not in an active state if the device has not been used in a second specified amount of time.
5. The system of claim 1, wherein if the device is not in an active state, the device is
20 electrically disconnected after a wait period, wherein if the device becomes active during the wait period, the device is not electrically disconnected.
6. The system of claim 1, wherein when the device is electrically disconnected from the host controller, the device does not cause bus activity.
- 25 7. The system of claim 1, wherein the device is a card reader, and if a memory card is inserted into the card reader and the card reader has been previously electrically disconnected, the electrical disconnect from the host controller is discontinued.
- 30 8. The system of claim 1, wherein if the processor is in a low power state, the processor exits the low power state if an electrical disconnect is discontinued.

9. The system of claim 1, wherein the device is a card reader and the card reader is permanently coupled to a portable computer computer.

5 10. The system of claim 1, wherein a sideband signal is used to signal the device to electrically reconnect after the device has been electrically disconnected.

11. The system of claim 1, wherein the host controller provides a peripheral bus interface for the device.

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12. The system of claim 1, wherein electrically disconnecting the device comprises electrically removing a pull up resistor from a D+ line.

13. The system of claim 1, wherein electrically disconnecting the device comprises
15 tri-stating a D+ line and a D- line.

14. A method, comprising:
detecting whether a device coupled to a host controller is in an active state;
if the device is not in an active state, electrical disconnecting the device from a
20 host controller; and
if the device is in an active state, maintaining an electrical connection between the device and the host controller.

15. The method of claim 14, wherein the device is a card reader, and the active state
25 comprises a memory card inserted in the card reader.

16. The method of claim 14, wherein the device is a hub, and the active state comprises a second device coupled to the hub.

17. The method of claim 16, wherein the second device is coupled to the hub and a sideband signal from a computer signals the hub to electrically disconnect and wherein a sideband signal from the computer signals the hub to electrically reconnect at a later time.

5 18. The method of claim 16, wherein the second device is coupled to the hub and a sideband signal from a computer signals the hub to enter a reduced functionality state and wherein a sideband signal from the computer signals the hub to exit the reduced functionality state at a later time.

10 19. The method of claim 14, wherein the device is not in an active state if the device has not been used in a second specified amount of time.

20. The method of claim 14, wherein if the device is not in an active state, the device is electrically disconnected after a wait period, wherein if the device becomes active
15 during the wait period, the device is not electrically disconnected.

21. The method of claim 14, wherein if no devices are coupled to the host controller the host controller does not create bus activity.

20 22. The method of claim 14, wherein the device is a card reader, and if a memory card is inserted into the card reader after the card reader has been electrically disconnected, the electrical disconnect is discontinued.

23. The method of claim 14, wherein electrical disconnecting the device from the host
25 controller makes it appear to the host controller that a device is not coupled to the host controller.

24. The method of claim 14, wherein the device is a card reader and wherein the card reader is not in an active state if the card reader has not been accessed in a second
30 specified amount of time.

25. The method of claim 24, wherein a sideband signal is used to signal the card reader to electrically reconnect when an attempt is made to access a card after the card reader has been electrically disconnected with a card inserted into the card reader.

5 26. The method of claim 14, wherein the host controller provides a peripheral bus interface for the device.

27. The method of claim 14, wherein electrically disconnecting the device comprises electrically removing a pull up resistor from a D+ line.

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28. The method of claim 14, wherein electrically disconnecting the device comprises tri-stating a D+ line and a D- line.

29. A system, comprising:

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a processor;

a host controller coupled to the processor;

a device detect logic;

a hub electrically coupled to the host controller and device detect logic;

an auto detach logic coupled to the hub; and

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wherein the auto detach logic initiates an electrical disconnect of the hub from the host controller if the device detect logic does not detect a device on the hub.

30. The system of claim 29, wherein when the hub is electrically disconnected, the hub does not create bus activity until a device is coupled to the hub.

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31. The system of claim 29, wherein if a device is coupled to the hub, the auto detach logic discontinues the electrical disconnect of the hub from the host controller.

32. The system of claim 29, wherein if the processor is in a low power state, the processor exits the low power state if the electrical disconnect is discontinued.

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33. The system of claim 29, wherein the processor is in a portable computer computer.

34. The system of claim 29, wherein the hub is permanently coupled to a portable
5 computer computer.

35. The system of claim 29, wherein the device comprises a keyboard, a mouse, a speaker, a microphone, a printer, a camera, a scanner, or a touchscreen.

10 36. The system of claim 29, wherein the device is a USB device and is coupled to the hub by plugging the device into a USB connection.

37. The system of claim 29, wherein the electrical disconnect comprises tristating the full speed (FS) and high speed (HS) transceivers.

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38. The system of claim 29, wherein the electrical disconnect is enabled by a configuration bit in an Electrically Erasable Programmable Read-Only Memory (EEPROM).

20 39. The system of claim 29, wherein if a device is not detected on the hub, the hub is electrically disconnected after a wait period, wherein if a device is attached to the hub during the wait period, the hub is not electrically disconnected.

40. A method, comprising:

25 detecting whether a device is coupled to a hub;

if a device is not coupled to the hub, electrical disconnecting the hub from a host controller; and

if a device is coupled to the hub, maintaining a connection between the hub and the host controller.

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41. The method of claim 40, wherein if a device is reconnected to the hub, the electrical disconnect is not maintained and if the processor is in a low power state, the processor awakes from the low power state.

5 42. The method of claim 41, wherein the device coupled to the hub comprises a keyboard, a mouse, a speaker, a microphone, a printer, a camera, a scanner, or a touchscreen.

43. The method of claim 40, wherein electrical disconnecting comprises tristating FS
10 and HS transceivers.

44. The method of claim 40, wherein electrical disconnect is enabled by a configuration bit in an EEPROM.

15 45. The method of claim 40, wherein electrical disconnecting the hub from the host controller makes it appear to the host controller that a device is not coupled to the host controller.

46. The method of claim 40, wherein if a device is not coupled to the hub, the hub is
20 electrically disconnected after a wait period, wherein if a device is coupled to the hub during the wait period, the hub is not electrically disconnected.

47. A carrier medium comprising program instructions, wherein the program instructions are executable to:

25 detect whether a device coupled to a host controller is in an active state;
if the device is not in an active state, electrical disconnect the device from a host controller; and
if the device is in an active state, maintain an electrical connection between the device and the host controller.

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48. The carrier medium of claim 47, wherein the device is a card reader, and the active state comprises a memory card inserted in the card reader.

49. The carrier medium of claim 47, wherein the device is a hub, and the active state
5 comprises a second device coupled to the hub.

50. The carrier medium of claim 47, wherein the device is not in an active state if the device has not been used in a second specified amount of time.

10 51. The carrier medium of claim 47, wherein if the device is not in an active state, the device is electrically disconnected after a wait period, wherein if the device becomes active during the wait period, the device is not electrically disconnected.

52. The carrier medium of claim 47, wherein if no devices are coupled to the host
15 controller the host controller does not create bus activity.

53. The carrier medium of claim 47, wherein the device is a card reader, and if a memory card is inserted into the card reader after the card reader has been electrically disconnected, the electrical disconnect is discontinued.

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54. The carrier medium of claim 47, wherein electrical disconnecting the device from the host controller makes it appear to the host controller that a device is not coupled to the host controller.

25 55. The carrier medium of claim 47, wherein the device is a card reader and wherein the card reader is not in an active state if the card reader has not been accessed in a second specified amount of time.

56. The carrier medium of claim 47, wherein a sideband signal is used to signal the
30 card reader to electrically reconnect when an attempt is made to access a card after the card reader has been electrically disconnected with a card inserted into the card reader.

57. The carrier medium of claim 47, wherein the host controller provides a peripheral bus interface for the device.

5 58. The carrier medium of claim 47, wherein electrically disconnecting the device comprises electrically removing a pull up resistor from a D+ line.

59. The carrier medium of claim 47, wherein electrically disconnecting the device comprises tri-stating a D+ line and a D- line.